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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|--------------------------|
| 10/770,642 | 02/03/2004 | Peter C. McNulty | 923.0003USU | 1613 |
| 7590 | 08/15/2006 | | | EXAMINER LUU, THANH X |
| Paul D. Greeley, Esq. Ohlandt, Greeley, Ruggiero & Perle, L.L.P. 10th Floor One Landmark Square Stamford, CT 06901-2682 | | | ART UNIT 2878 | PAPER NUMBER |

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|-------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/770,642 | MCNULTY, PETER C. |
| | Examiner | Art Unit |
| | Thanh X. Luu | 2878 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 and 32-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-21 and 32-47 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/21/05.

- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 23, 2006 has been entered.

Claims 1-21 and 32-47 are currently pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2, 14 and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 2, 14 and 34, it appears that Applicant has failed to disclose an embodiment in which a sub-circuit converts the row address into a row signal that drives a row of the pixel sensor array and a sub-circuit that converts the column address into a column signal that drives a column of the active pixel sensor array. As understood, the

row address in the independent claim is the row signal. It is unclear where in the original disclosure is there a distinction made between a row address and a row signal or of any conversion between a row address and a row signal.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 5-8, 11-13, 15, 18-21, 32, 33, 35, 38-42, 46 and 47, are rejected under 35 U.S.C. 102(b) as being anticipated by Ewedemi et al. (U.S. Patent Application Publication 2001/0040631).

6. Regarding claims 1, 3, 5-8, 11-13, 15, 18-21, 32, 33, 35, 38-42, 46 and 47, Ewedemi et al. disclose (see Fig. 3) a circuit comprising: a decoder (214) for receiving a memory address within a memory address space of a processor (20), converting the memory address into a row address and a column address that designate (data in the memory 210 represents pixel data that inherently represents/designates a position of the pixel) a position of a pixel in an active pixel sensor array (202) and accessing the pixel (in the memory 210) based on-the row and column addresses, wherein the decoder maps the active pixel sensor array to the memory address space. That is,

since active pixel sensor data is already stored in memory (210), the apparatus of Ewedemi et al. sees the pixel sensor data in memory (210) as being the memory address space of the processor. Furthermore, the memory (210) is being accessed by row and column addresses (see Fig. 5; RAS and CAS). Ewedemi et al. also disclose (see Fig. 3) a converter (220) for representing a charge read from the pixel as a digital value. The device of Ewedemi et al. images and is capable of target tracking, in which the target may be a star. Furthermore, since access to the pixel array has to start and end, start and end addresses are inherent as claimed. Integration time is inherently controlled.

7. Claims 1, 3, 5-8, 11-13, 15, 18-21, 32, 33, 35, 38-42, 46 and 47, are rejected under 35 U.S.C. 102(e) as being anticipated by Canini et al. (U.S. Patent 6,512,218).

Regarding claims 1, 3, 5-8, 11-13, 15, 18-21, 32, 33, 35, 38-42, 46 and 47, Canini et al. disclose (see Fig. 6) a circuit comprising: a decoder (inherent in 10 and 30) for receiving a memory address within a memory address space of a processor (3), converting the memory address into a row address and a column address that designate a position of a pixel in an active pixel sensor array (5) and accessing the pixel based on the row and column addresses, wherein the decoder maps the active pixel sensor array to the memory address space. That is, such features are inherent since Canini et al. carries out direct memory access, which Applicant equates to a processor addressing a pixel array within the memory space of the processor. Canini et al. also disclose (see Fig. 6) a converter (7) for representing a charge read from the pixel as a digital value; and (see col. 7, lines 35-40) windowing, which inherently receives a start

and end addresses as claimed. Integration time is inherently controlled. The device of Canini et al. images and is capable of target tracking, in which the target may be a star.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 16, 17, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Ewedemi et al. or Canini et al. in view of Wilder (U.S. Patent 5,262,871).

Regarding claims 4, 16, 17, 36 and 37, Ewedemi et al. and Canini et al. disclose the claimed invention as set forth above. Ewedemi et al. and Canini et al. do not specifically disclose correcting for a gain of the pixel. Wilder teaches (see Fig. 15) amplifiers for correcting a gain of the pixel. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an amplifier in the apparatus of Ewedemi et al. or Canini et al. in view of Wilder to boost a signal with an amplifier to improve imaging.

10. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Ewedemi et al. or Canini et al. in view of Rathi (U.S. Patent 5,296,852).

Regarding claims 9 and 10, Ewedemi et al. and Canini et al. disclose the claimed invention as set forth above. Ewedemi et al. and Canini et al. do not specifically

disclose summing the charges or comparing the sum to a threshold as claimed. Rathi teaches (see abstract and Fig. 5) summing up charges from a plurality of pixels and comparing to a threshold to determine whether a target is represented. Thus, Rathi recognizes that such operations are conventional in target recognition applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such operations in the apparatus of Ewedemi et al. or Canini et al. in view of Rathi for more expansive machine vision applications.

11. Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Ewedemi et al. or Canini et al. in view of Metcalfe (U.S. Patent 6,825,936).

Regarding claims 43-45, Ewedemi et al. and Canini et al. disclose the claimed invention as set forth above. Ewedemi et al. and Canini et al. do not specifically disclose sub-frames and having first and second integration times. Metcalfe teaches (see Fig. 5 and col. 8, lines 35-40) sub-frames of pixels having different integration times. Furthermore, choosing the overlap frames is well known. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such configurations in the apparatus of Ewedemi et al. or Canini et al. in view of Metcalfe for more dynamic imaging.

Response to Arguments

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Thanh X. Luu whose telephone number is 571-272-2441. The examiner can normally be reached on M-F 6:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thanh X. Luu
Primary Examiner
Art Unit 2878

08/2008